Yinheng Zhu

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Education

Tsinghua University,Shenzhen , China 2019 – 2021

M.S. in Data Science and Information Technology

Xiamen University, Xiamen, China 2015 – 2019

B.E. in Cognitive Science and Technology
B.S. in Mathematical Statistic(Minor)
GPA:3.7/4(top 1%)

Research

University of California, Irvine CA, U.S. 2017.6 – 2017.9

Research Assistant Supervisor: Prof. Harris[1]

Accurate pupil tracking in the wild

- **Target:** Tracking pupil center in the head mounted near infrared image sequence for gaze estimation or other perceptual researches.
- **Accurate:** Pixel-wise error is required to be less than 5 pixel.
- Our method achieved state-of-art in accuracy. [arxiv]

Media Analytics and Computing Lab in Xiamen University Xiamen, China 2017.9 – 2018.6

Research Assistant Supervisor: Prof. Rongrong Ji[2], Shaohui Lin[3]

Neural network quantization

- **Network Quantization:** Using low-bit fix-point representation for it's acceleration and compression.
- Read related publications and finished a review report.(in Chinese) [pdf]
- Reduplicated two representative papers. [project]
- Wrote a note about the mistake found in a NIPS paper [pdf]
- Quantized neural network suffer from inaccurate and biased gradient when trained with BP algorithm, and I am working on this through knowledge distillation and transfer learning.

SenseTime Research Shenzhen, China 2018.6 – 2018.9

Research Intern Supervisor: Dr. Qiong Yan[4]

Neural network quantization for mobile device

- **Target:** Improve inference speed of network in integer-only DSP unit for image argumentation.
- Designed special mechanism for linear interpolation that further improving the speed without loss on performance.

Tsinghua-Berkeley Shenzhen Institute Shenzhen, China 2018.6 – Present

Research Assistant Supervisor: Prof. Lu Fang[5]

Reference based super-resolution

- **Target:** Solving the large disparity problem in deep learning based dense optic flow estimation to further improve SR performance through more accurate and robust texture transfer.
- Related paper is under minor revision.

[1] http://www.ics.uci.edu/ harris/
[2] http://mac.xmu.edu.cn/rrji-en.html
[3] https://sites.google.com/site/shaohuilin007/home
[4] http://www.yan-qiong.com/
[5] http://www.luvision.net/

Tsinghua-Berkeley Shenzhen Institute Shenzhen, China 2019.5 – Present

Research Assistant Supervisor: Prof. Lu Fang[6]

Chunk-based sparse 3D convolution for semantic segmentation

- **Target:** First accuracy in Stanford 3D dataset and make it efficient enough for mobile device.
- Related paper has been accepted by IEEE VR conference(Journal Track TVCG).

Honors and Awards

National Scholarship(0.2%)	2017
Lotus Foundation Scholarship(1%)	2017
Dean's Honor List(5%)	2017
National 2nd Prize, Award on National Artificial Intelligence Design Competition	2017
Meritorious Winner, Award on Interdisciplinary Contest In Modeling	2017
Regional 3rd Prize, Award on China-US Young Maker Competition	2016

Miscellaneous

- I write some blogs about neural network technique here(in Chinese): https://www.zhihu.com/people/haffman/posts
- There are some interesting course projects are hosted on GitHub: https://github.com/cow8

[6] http://www.luvision.net/